

~~170-135.2~~

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Br. 87

170  
135.2

March 30, 1906  
No. 2202  
Inventor 142,761  
Electrically illustrated

FIG. 1.

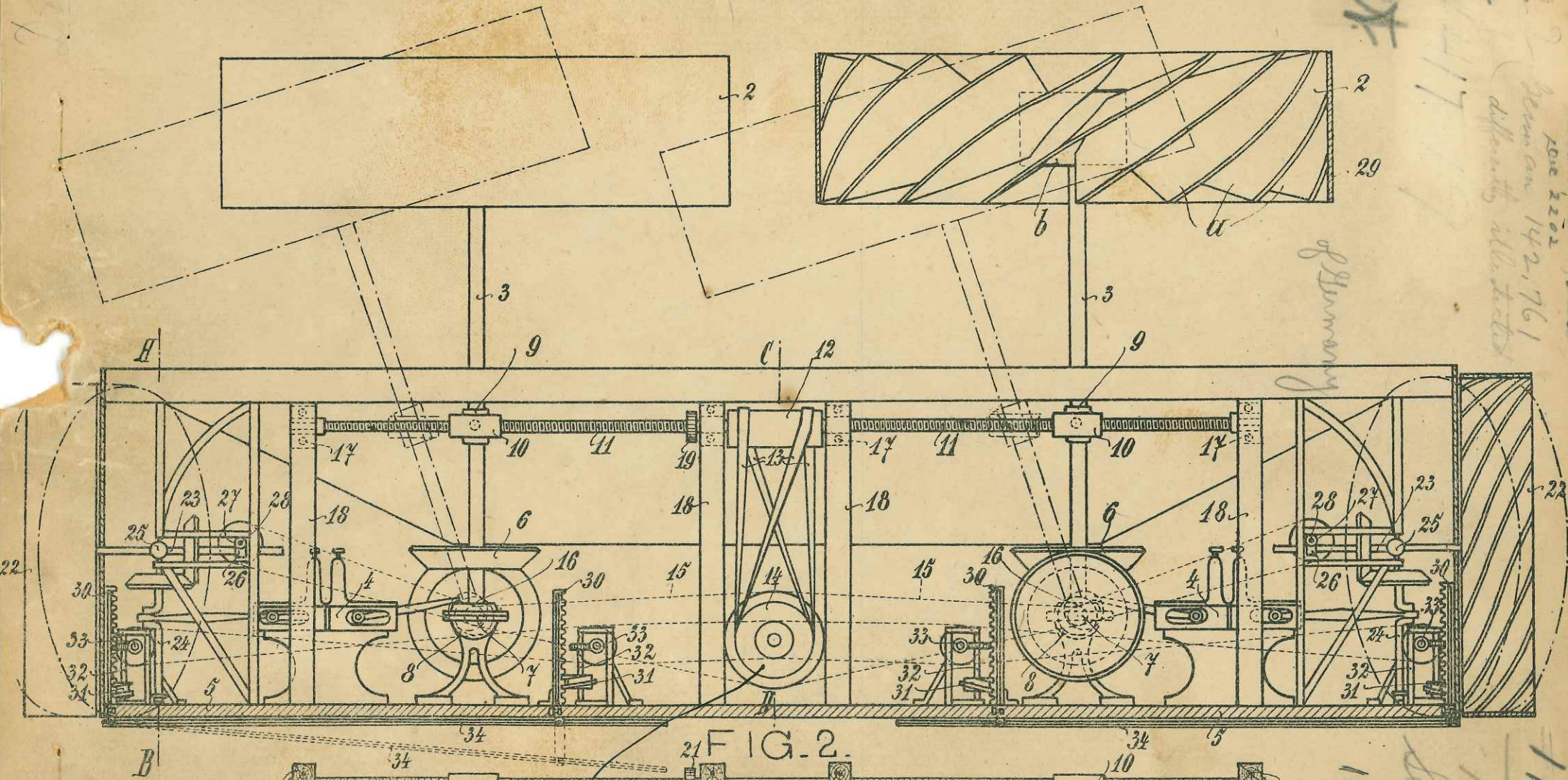
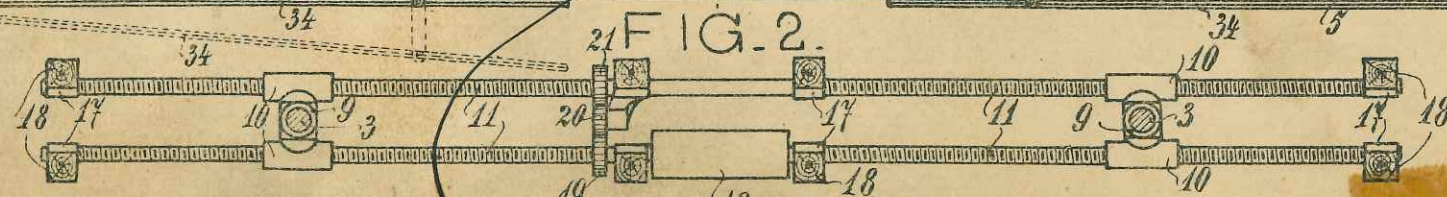


FIG. 2.



operated by motor shaft 7.

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FIG. 5.

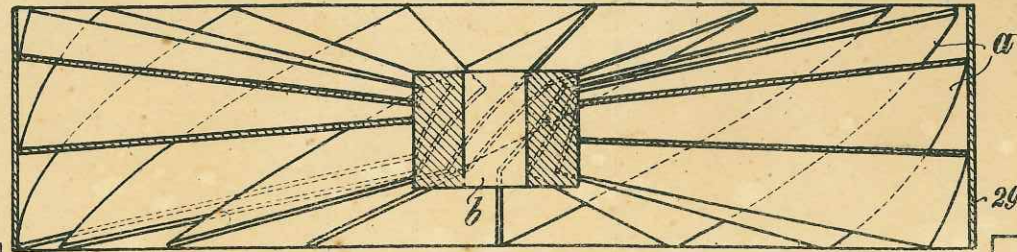


FIG. 3.

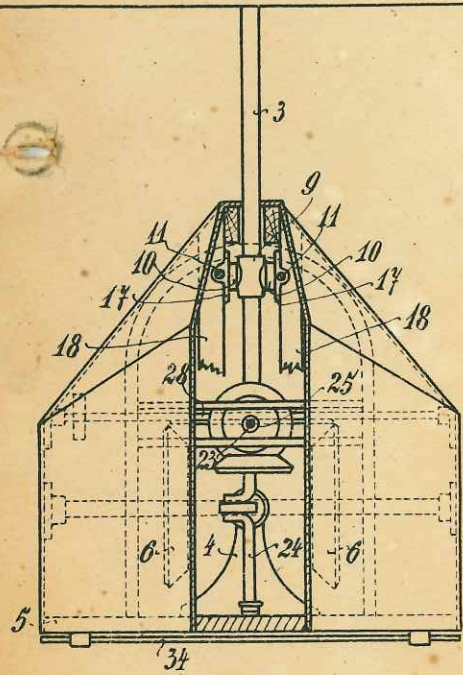


FIG. 4.

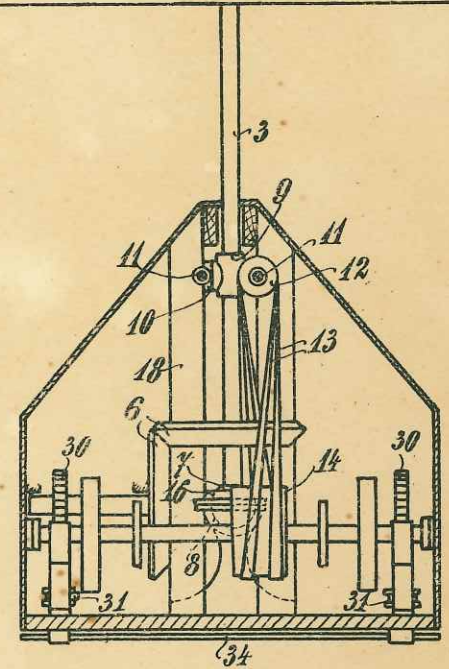
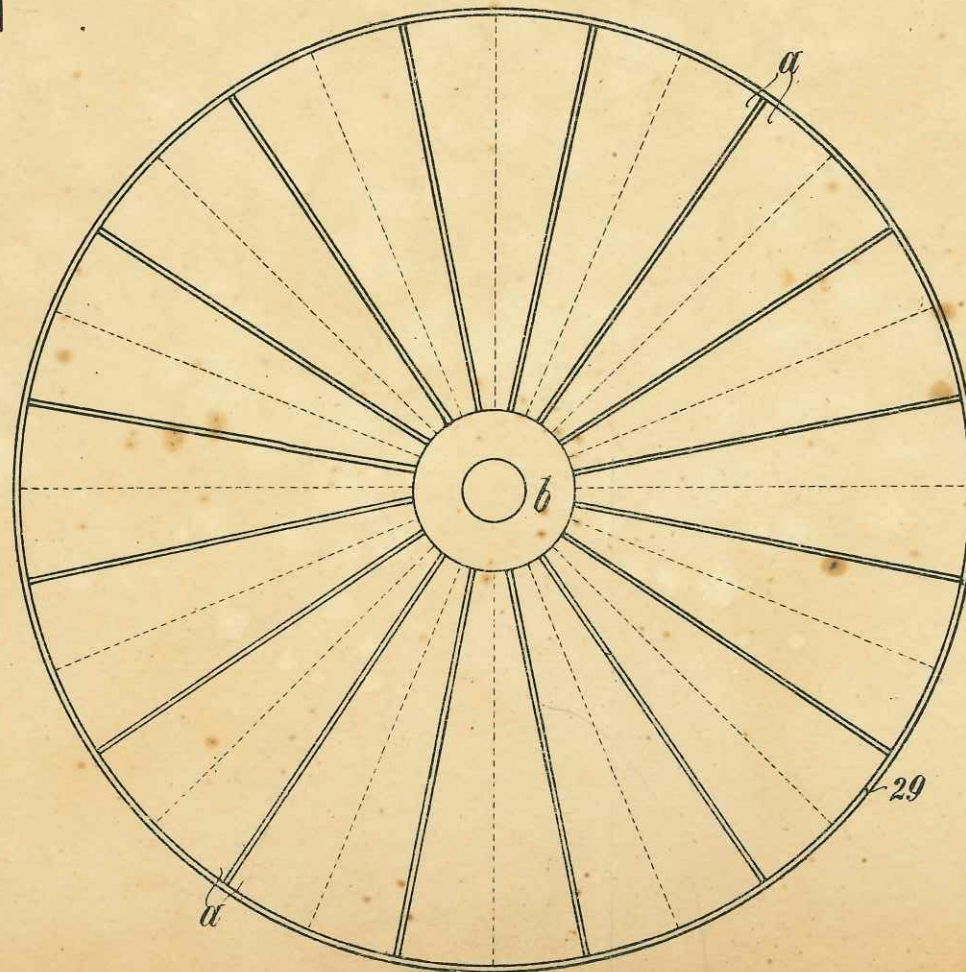


FIG. 6.





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A.M. 28  
N<sup>o</sup> 11,982



A.D. 1902

*Date of Application, 26th May, 1902*

*Complete Specification Left, 19th Dec., 1902—Accepted, 5th Feb., 1903*

PROVISIONAL SPECIFICATION.

DUPLICATE

Improvements in Flying Machines.

I, JOSEF SEIBERL, of Rolandsmühle, Bremen, Germany; Expert in the construction of mills; do hereby declare the nature of this invention to be as follows;—

5 My invention relates to a flying machine designed to be raised and kept suspended in the air and also to be moved forward in the horizontal direction, by means of screw propellers driven by benzene motors.

According to the size of the flying machine use is made of one or more carrier screw propellers. The shafts of these carrier propellers are rotated by double acting benzene motors arranged upon the bottom of the ship or body of the flying machine. The motion of the driving shaft may for instance be transmitted through the medium of a pair of bevel wheels.

10 The shafts of the carrier propellers are held below in footstep bearings and above in a bearing adapted to be displaced. In order to ensure a firm connection of the carrier propeller shafts with the footstep bearings in the axial direction, the shafts have spherical ends and the lower part of the bearing is made hemispherical. The spherical end of the shafts is held in these bearings by a cover firmly connected with the lower part of the bearing and the bore of which is likewise spherical. In the top of the cover there is an opening for the passage of the shaft such opening being sufficiently large for enabling the shaft to  
15 sway or assume an inclined position, so that the carrier propellers may be employed not only for the ascent and descent and for the suspension of the flying machine in the air, but also, when placed in a suitable position relatively to the direction of the movement of the flying machine, as a valuable auxiliary for propelling the machine forward. Thus the covers transmit the traction of  
20 the propeller screws to the bearings and through these to the flying machine.

25 The displacement of the bearings for placing the propeller shafts at any desired inclination may be effected by screw-threaded spindles and nuts adapted to move thereon and pivoted to the bearings.

Two screw-threaded spindles are preferably provided and held in bearings  
30 upon supports in the flying machine so as to prevent axial displacements of the same. One of the two screw spindles is actuated by the motor shafts through the agency of belt pulleys and transmits its movement to the other spindle by means of toothed wheels.

Besides the carrier screw propellers if these act at an inclination to the direction of the movement of the flying machine, I use, for the movement of the flying machine in the horizontal direction, mainly two screw propellers arranged to turn about horizontal axes, one of these propellers acting in front and the other at the rear of the machine. The shafts of these propellers are held in a bearing adapted to be turned about the axis and in a second bearing which  
35 can be displaced. To the latter bearing is pivoted a nut which can be displaced upon a screw-threaded spindle firmly held transversely in the body of the machine,

[Price 8d.]



*Seiberl's Improvements in Flying Machines.*

By this spindle, which receives its motion from the motor shaft, the screw propeller is placed in position for changing the direction of movement of the machine in the horizontal direction, thereby dispensing entirely with special steering devices.

Preferably all the screw propellers are of the kind having their vanes surrounded by a crown which is fixed to the same and prevents the radial escape of the pressed air so as to utilize the full pressure for the movement. A novel feature in these screw propellers consists in arranging the vanes in such a manner that one practically covers the other. By this means I am enabled to optionally increase the number of vanes independently of the pitch of the same, and thus also the effect of the propellers and the uniformity of their action.

Under the bottom of the flying machine are arranged two flat sails. These are held at their four corners by racks which can be adjusted by worms on vertical spindles. The spindles receive their turning movement from shafts, which may be turned by hand with the aid of cranks or by the motors as required, in order to place the flat sails in any required position. In this manner they may be used both for steering in the vertical planes and by reason of their inclination relatively to the direction of the movement also as an auxiliary for increasing the carrying power.

Dated this 26th day of May 1902

F. W. GOLBY

Patent Agent.

36 Chancery Lane, London. W.C.

Agent for the Applicant.

COMPLETE SPECIFICATION.

**Improvements in Flying Machines.**

I, JOSEF SEIBERL of Rolandsmühle, Bremen, Germany do hereby declare the nature of this invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement.

My invention relates to a flying machine designed to be raised and kept suspended in the air and also to be moved forward in the horizontal direction, by means of screw propellers driven by benzene motors.

In the accompanying drawing

Figure 1 is a vertical longitudinal section of the improved flying machine;

Figure 2 is a plan showing a detail;

Figure 3 is a transverse section on the line A—B, and

Figure 4 a transverse section on the line C—D of Figure 1: whilst

Figure 5 shows an axial section of an air propeller and

Fig. 6 a plan of the same.

According to the size of the flying machine use is made of one or more carrier screw propellers 2. In the constructional example shown two carrier propellers are employed. The shafts 3 of these carrier propellers are rotated by double-acting benzene motors 4 arranged upon the bottom 5 of the ship of the flying machine. The motion of the driving shaft 7 may for instance be transmitted through the medium of a pair of bevel wheels 6.

The shafts 3 of the carrier propellers 2 are held below in footstep bearings 8 and above in a bearing 9 adapted to be displaced. In order to ensure a firm connection of the carrier propeller shafts with the footstep bearings 8 in the axial direction, the shafts 3 have spherical ends and the lower part of the bearing 8 is made hemispherical. The spherical end of the shafts 3 is held in



*Seiberl's Improvements in Flying Machines.*

there bearings by a cover 16 firmly connected with the lower part of 8 of the bearing and the bore of which is likewise spherical. In the top of the cover 16 there is an opening for the passage of the shaft 3, such opening being sufficiently large for enabling the shaft 3 to sway or assume an inclined position, so that the carrier propellers may be employed not only for the ascent and descent and for the suspension of the flying machine in the air, but also, when placed in a suitable position relatively to the direction of the movement of the flying machine, as a valuable auxiliary for propelling the machine forward. Thus the covers 16 transmit the traction of the propeller screws 2 to the bearings 8 and through these to the flying machine.

The displacement of the bearings 9 for placing the propeller shafts 3 at any desired inclination is effected in the constructional form shown by screw threaded spindles 11 and nuts 10 adapted to move thereon and pivoted to the bearings 9.

As shown in Fig. 2, two screw-threaded spindles 11 are provided and held in bearings 17 upon supports 18 in the flying machine so as to prevent axial displacements of the same. One of the two screw spindles is actuated by the motor shafts 7 through the agency of belt pulleys 12, 13, 14, 15, and transmits its movement to the other spindle by means of toothed wheels 19, 20, 21.

Besides the carrier screw propellers if these act at an inclination to the direction of the movement of the flying machine I use for the movement of the flying machine in the horizontal direction mainly the screw propellers 22 arranged to turn about horizontal axes, one of these propellers acting in front and the other at the rear of the machine. The shafts 23 of these propellers are held in a bearing 25 adapted to be turned about the axis and in a second bearing 26 which can be displaced. To the latter bearing is pivoted a nut 27 which can be displaced upon a screw-threaded spindle 28 firmly held transversely in the body of the ship. By this spindle 28, which receives its motion from the motor shaft 7, the screw propeller 22 is placed in position for changing the direction of movement of the machine in the horizontal direction, thereby dispensing entirely with special steering devices.

In the constructional form shown all the screw propellers are of the kind having their vanes surrounded by a crown 29 which is fixed to the same and prevents the radial escape of the pressed air so as to utilize the full pressure for the movement. A novel feature in these screw propellers consists in arranging the vanes *a* in such a manner that one partially covers the other. By this means I am enabled to optionally increase the number of vanes independently of the pitch of the same, and thus, also the effect of the propellers and the uniformity of their action.

Under the bottom 5 of the flying machine are arranged two flat sails 34. These are held at their four corners by racks 30 which can be adjusted by worms 31 on vertical spindles 32. The spindles receive their turning movement from shafts 33, which may be turned by hand with the aid of cranks or by the motors as required, in order to place the flat sails in any required position. In this manner they may be used both for steering in the vertical plane and by reason of their inclination relatively to the direction of the movement also as an auxiliary for increasing the carrying power.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:

1). In a flying machine of the character described, the combination, with an air ship, of screw propellers having shafts adapted to turn about transverse axes, screw threaded spindles arranged transversely, to the said axes, bearings fitted to slide upon the propeller shafts, nuts pivoted to these bearings and arranged upon the spindles, and means for rotating these spindles, substantially as and for the purpose set forth.



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*Seiberl's Improvements in Flying Machines.*

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2). In a flying machine of the character described, the combination, with an air ship, of screw propellers having vanes partially covering each other. substantially as and for the purpose set forth.

3) In a flying machine of the character described, the combination, with an air ship, of flat sails arranged below the ship's bottom, racks holding the corners 5 of the sails, worms gearing with the racks, vertical spindles, and means for rotating these spindles, substantially as and for the purpose set forth.

Dated this 19th day of December 1902.

F. W. GOLBY  
Patent Agent,  
36 Chancery Lane, London. W.C.  
Agent for the Applicant.

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